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REC'D 22 JUN 2004
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A3-0217 PYK	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
International Application No. PCT/SG2003/000177	International Filing Date (day/month/year) 24 July 2003	Priority Date (day/month/year) 24 July 2003
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ E02D 7/00		
Applicant WONG, Yew Kee et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheet(s).

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 30 March 2004	Date of completion of the report 8 June 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer S. GHOSH Telephone No. (02) 6283 2163

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1. With regard to the elements of the international application:*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SG2003/000177

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1 - 14	YES
	Claims	NO
Inventive step (IS)	Claims 1 - 14	YES
	Claims	NO
Industrial applicability (IA)	Claims 1 - 14	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1: GB 2367322 D2: US 4925345 D3: DE 3815748
D4: EP 103283 D5: GB 2358035 D6: GB 2161731

Novelty (N) Claims 1-14

None of the cited documents disclose the invention defined in claim 1, viz. a piling device having pile gripping and pile driving mechanisms, with both mechanisms being pivotally connected to and supported by a support frame, wherein the pivotal connection enables the pile to be aligned in a desired orientation relative to the support frame prior to being driven into the ground.

There is also no disclosure in the cited documents of all of the features of each of the other independent claims 4, 7, 8 and 9.

Therefore the subject matter of these claims is new and meets the requirements of Article 33(2) of the PCT with regard to novelty.

Inventive Step (IS) Claims 1-14

The claimed invention is **not obvious** in the light of any of the cited documents nor is it disclosed in any obvious combination of them. It is also considered that it would not be obvious to a person skilled in the art in the light of common general knowledge either by itself or in combination with any of these documents.

Therefore the subject matter of these claims meets the requirements of Article 33(3) of the PCT with regard to inventive step.

Industrial Applicability (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.

CLAIMS

1. A piling device, including:
 - a support frame having a lower end mounted on a footing;
 - 5 a mechanism for gripping a pile;
 - a mechanism for driving the pile into the ground;
 - the gripping mechanism and the piling mechanism being pivotally connected to and supported by the frame;
 - the pivotal connection of the gripping and driving mechanisms to
 - 10 the frame enabling a pile gripped by the gripping mechanism to be aligned in the desired orientation relative to the frame prior to being driven into the ground.
2. A device according to claim 1, wherein the pivotal connection enables
- 15 angular adjustment of a pile gripped by the gripping mechanism relative to the frame.
3. A device according to claim 1, wherein a pivotal adjustment actuator is provided, the actuator including at least one hydraulically actuated cylinder
- 20 connected between the frame, and the driving and/or gripping mechanisms.
4. A piling device, including:
 - a support frame having a lower end mounted on a footing;
 - 25 a mechanism for gripping a pile;
 - a mechanism for driving the pile into the ground;
 - the gripping mechanism and the piling mechanism being connected to and supported by the frame; wherein
 - the frame includes at least one opening provided in the side thereof
 - 30 to facilitate removal of the device from around a pile partially extending from the ground.

5. A device according to claim 4, wherein the opening is sized to allow a pile partially extending from the ground to pass there through in the event that the frame has to be moved during the piling operation.
- 5 6. A device according to claim 4, wherein the device includes two openings located on opposite sides of the frame.
7. A piling device, including:
- 10 a support frame having a lower end mounted on a footing;
a mechanism for gripping a pile;
a mechanism for driving the pile into the ground;
the gripping mechanism and the piling mechanism being connected to and supported by the frame; wherein
the gripping mechanism is hydraulically operated;
15 the gripping force applied by the gripping mechanism to the pile is adjustable; and
a control panel is provided for operating the gripping mechanism, including selection of a desired gripping force.
- 20 8. A piling device, including:
- a support frame having a lower end mounted on a footing;
a mechanism for driving a pile into the ground;
the upper end of the pile driving mechanism is connected to the upper end of the frame and extends downwardly relative to the frame;
25 a mechanism for gripping a pile; wherein
the gripping mechanism is connected to and extends downwardly from the lower end of the pile driving mechanism; and
the driving mechanism includes a driving frame and hydraulic cylinders extendable downwardly relative to the driving frame, wherein the
30 lower end of the cylinders are connected to the gripping mechanism.

9. A piling device, including:
- a support frame having a lower end mounted on a footing;
 - a mechanism for gripping a pile;
 - a mechanism for driving the pile into the ground;
 - 5 the gripping mechanism and the piling mechanism being connected to and supported by the frame;
 - the footing including ground mounted footings and respective frame mounted footings;
 - the frame mounted footings being movably mounted on the
 - 10 respective ground mounted footings; and
 - vertically orientated hydraulic cylinders connected to and extending between each pair of frame and ground mounted footings to facilitate movement of the device in the vertical direction relative to the ground and ground mounted footings.
 - 15
10. A device according to claim 9, wherein the frame mounted footings are movably mounted on the respective ground mounted footings by the inclusion of roller bearing assemblies between the frame mounted footings and ground mounted footings.
- 20
11. A device according to claim 10, wherein the bearings are connected to the frame mounted footings and/or ground mounted footings.
- 25
12. A device according to claim 9, wherein horizontally orientated hydraulic cylinders are connected to and extend between each pair of frame and ground mounted footings, to facilitate movement of the device in a horizontal direction relative to the ground and ground mounted footings.
- 30
13. A device according to claim 9, including counterweights mounted on the frame to prevent the frame from moving during the piling operation.

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- 14. A device according to claim 13, wherein the device can be moved with the counterweights mounted on the frame.**